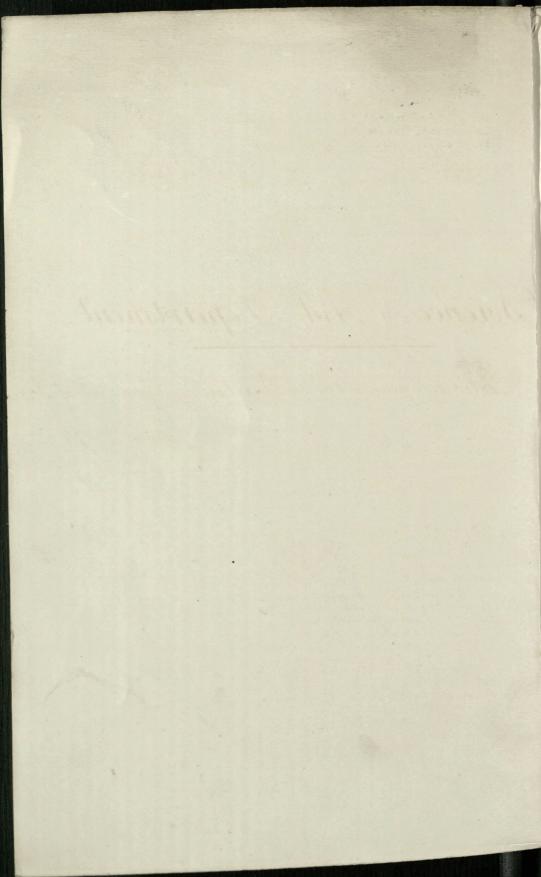
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Science & Art Department.

Article from the Quarterly Journal of Science January, 1865.







THE QUARTERLY

JOURNAL OF SCIENCE.

JANUARY, 1865.

ORIGINAL ARTICLES.

THE SCIENCE AND ART DEPARTMENT.

In the Introduction to this Journal we announced, as a portion of our programme, the discussion of Scientific questions allied to politics,* and we referred more especially to the action of the Department of Science and Art in promoting Science instruction throughout Great Britain.

This intention we have hitherto fulfilled only so far as to publish on two occasions the lists of gold medallists at the State Examinations; but in our last Number we promised to devote a portion of our space to the consideration of the whole subject, and that we now propose to carry out with strict impartiality. The last observation is rendered necessary by the fact, that the criticisms with which we shall feel it our duty to accompany a brief review of the history of the South Kensington Science movement, will not be of the most flattering kind, so far as they concern those persons who have directed the scheme during the last three or four years; but the only personal feeling we have in the matter, is one of regret, that a movement which we have endeavoured earnestly, though humbly, to promote by word and deed, should present so unfavourable a retrospect, and be marked by such grave acts of injustice as those by which we shall find it to be characterized. Inviting our readers, more especially the uninitiated, to follow with us the history of the scheme from its commencement, we find that in the year 1859, only five years since, the Committee of Council on Education, of which Lord Salisbury was then the President, offered to professional men who had been favoured with a scientific education, a moderate but honourable remuneration, to induce them to enlist in the service of the State, for the purpose of extending the usefulness of the Science and Art Department; and they further sought to secure for their excellent project the honorary aid of persons throughout the length and breadth of the land, who, from purely disinterested motives desired to promote the cause of Science, and to raise the intelligence of the industrial classes. The former were to act as Science teachers, the latter as committees of management under the guidance of the State.

Industrious and self-denying men of Science were told that if they would qualify themselves by the requisite studies, and by passing an examination that would entitle them to become certificated teachers, they would receive, whilst actually engaged in "giving instruction in a school or Science class for the industrial classes, approved by the Department," "annual grants," according to the grade of their certificates.

And these sums were to be paid without reference to the small fees which they might receive from their students.

The State further told them, that in order to assist them in raising their students to the highest state of proficiency, it would give to the latter prizes and medals; and that payments would be made to the teacher, "on each first class Queen's Prize obtained by the student, 3l.; on each second class, 2l.; and on each third class, 1l." †

To gentlemen who had the leisure and inclination to co-operate with them through the formation of schools or Science classes, my Lords said, if you will apply to us through your managers "for a certificated teacher," or for the certification of any teacher, we will provide you therewith.

Admirable was the operation of this "minute." Annual examinations were held at South Kensington, to which scientific men hastened to take their degrees; some with a view to take office under "the Department," others to make themselves acquainted with the routine practised by the Committee of Council on Education, and thus the more effectively to give their aid as honorary promoters of Science classes.

There can be no mistake concerning the intention of the State when this scheme was set on foot, and whoever reads carefully the wording of the regulations in the Report referred to, will be satisfied that it was meant to convey the impression that those who entered its service would be remunerated by annual payments of the amounts specified, so long as they were engaged in teaching under the Department; and neither teachers nor members of committees could for an instant suppose that these payments would be rapidly diminished, and that the State would speedily shake off its responsibilities and leave them to shift for themselves.

But this, we shall find to have been the case.

At first it was found a very difficult matter to set the machinery at work, and the most creditable efforts were made by the Department to establish classes throughout Great Britain.

Earl Granville, who followed Lord Salisbury as President of the

^{* &#}x27;Sixth Report of the Science and Art Department, 1859.'
† Ibid.
‡ Ibid.

Committee of Council on Education, took a deep personal interest in the movement, and visited some of the provincial towns, where efforts were being made to establish schools. But even at this early stage of the proceedings, there were indications that the movement was not to be characterized by that high tone of morality, by that scrupulous honour, which should distinguish all philanthropic schemes, more

especially such as are undertaken by the State.

In their efforts to establish classes, the heads of the Department sometimes pushed their zeal beyond the limits of discretion. The lectures delivered by the officials, as, for example, that of Captain Donelly, the Science Inspector, which was read on the 4th February, 1861, at South Kensington, and was afterwards published along with several others by the examiners, were all well adapted to secure the desired end; although, in reference to Captain Donelly's lecture, we cannot help remarking, that it sounded the first note of disavowal, and was calculated to shake the confidence of those who read it, in the bona fide intentions of Government. But in the selection of its emissaries to the provinces, the Department was by no means so happy as in that of its metropolitan advocates; and a certain Mr. Buckmaster, who called himself the "organizing teacher," but whose name will not be found in any of the printed lists of officials attached to the "Directories," was the chief instrument employed for the establishment of new classes. This gentleman, who possesses a high degree of energy combined with an equally large amount of volubility, succeeded by the promises which he held out on behalf of the State in promoting the establishment of several new classes. We have heard it said, however, that the Department could not always recognize the validity of these promises, as some of them were not in strict accordance with its regulations; and although complaints were made to the highest authorities, this gentleman was subsequently retained by the Department, "unattached," it is true, and has been rewarded for his services in a somewhat equivocal manner, to be described hereafter.

The result of the efforts made by the Department to establish classes—the impetus given by the first swing of the pendulum—has been astonishing; and notwithstanding the serious drawbacks which followed, we find this result to be represented by the following

In the year 1859, the classes were five in number; in 1864, ninety-five. In the Report of 1859 we find mention made of five students who had taken certificates as Science teachers; in 1864, the list of certificated teachers comprises 332 names, some being of men of the highest standing and intelligence; and whilst we find no record of the number of students taught in the five schools which were in existence in 1859, the number of those who attended the 95 classes of 1864 was 3,560.

But we must review cursorily the action of the State in the interim, and we fear that some features will present themselves which will tend materially to qualify the admiration wherewith every one must regard this effort to improve the intelligence of the industrial

classes.

Every year, since the publication of the Sixth Report, a 'Directory' containing revised regulations has been issued by the Science and Art Department, and in that of 1860 (the minute of 1859 not having as yet produced the desired effect), the questions of certificate money, Queen's prizes, and all other matters of a similar character, were allowed to remain unchanged; early in 1861, however, appeared Captain Donelly's lecture, in which the Department of Science and Art was declared to be "now the constituted machinery for giving State aid to certain branches of instruction;" but a gentle hint was given to those whom it might concern, that whilst the Government would grant such aid with as little interference as possible, yet it might hereafter reduce or eventually withdraw the stipends of teachers. This announcement was accompanied by appeals to the patriotism and amour propre of committees to make the movement self-supporting, so that it might require less and less "cockering up by State aid."

The fact is, that a contest for the loaves and fishes had begun between the Science and Art Department and the Education Department of Whitehall, the latter being represented by Mr. Lingen, who, jealous of what appeared to be the preference shown to Science instructors, after the screw had been adjusted all over the country in National schools, showed his appreciation of high mental acquirements, by manifesting a desire to see Masters of Arts of Oxford and M.D.'s of London, who might be engaged at the invitation of Government in teaching Natural Science to artisans for 201. or 401. per annum, placed on the same footing with village instructors in spelling

and the first rules of arithmetic. In fact, these gentlemen must no longer be paid according to the rank of their attainments, but, as in the other case, "upon results." We shall see presently how far that system (the system of results) was adhered to; but meanwhile we must mention, that the Department of Science and Art was powerless to resist the encroachment, and, although it consoled itself with having gained the questionable advantage previously denied to it, of granting aid to certificated teachers in elementary schools, who felt disposed to give their services as Science teachers, we find in a second revised 'Directory' issued in 1862 (for there were two 'Directories' published in that year), that all the previous conditions upon which the teachers had been engaged were annulled, and their payments were to be regulated solely by the number and proficiency of passed students.

Thus, it mattered not whether the teacher was a lecturer of high scientific attainments to whom a "diploma," * or a first grade certificate, had been granted, or whether he was a teacher in a village school who had managed to obtain a certificate of the lowest grade.

When we have followed the history of the movement a little further, we shall find, that if we were at first disposed to accredit the Government with the sole desire to benefit the "industrial classes" by this change, such an opinion will be untenable, for these have been treated with the same parsimony as their teachers.

^{*} In a few cases diplomas were granted to men of well-known attainments, without examination.

The fact is, the State had undertaken too much, and nad not the moral courage to restrict its operations. The 'Directory' of 1862 contained a list of 171 certificated Science teachers against 53 in 1860, and whilst the Government seemed indisposed to increase its expenditure by an additional outlay "in aid," it still permitted their, number to increase without limitation. But, in the same 'Directory' we first find the unmistakable announcement (three years after the movement had been started, and one year after it was fairly in operation), that the amount of remuneration to teachers "is liable to be decreased, and altogether withdrawn."

It might perhaps have been pardonable in the State if it had said to the crowds who were flocking in to enlist in its service, "Come, gentlemen, without let or hindrance, and join in our work, we don't mean to pay you much longer, so, the more the merrier, and you may, with the help of your committees continue the work we have so gloriously begun." But was this honourable to those who were already engaged in teaching, or to the committees whose gratuitous services had been secured on the conditions previously announced? We think not; and we think too, that the Government which has so acted, will find that its proceedings have not been dictated by a sound policy.

The state of affairs under the new régime, then, was as follows :-Instead of being paid a fixed stipend varying in value according to the grade of his certificate, &c., the teacher received a grant composed of head moneys—say, for every "passed" student, 1l.; for "honourable mentions," 21.; and for 1st, 2nd, and 3rd grade prizemen, 51., 41., and

31. respectively.

So far there was not much to be complained of in the change; and it is only fair to Government to say that, on the whole, it appeared to have been dictated by justice and prudence; for if, under the old regulations, a teacher held six first-class certificates in six distinct branches of Science, he could claim 201. upon each of those certificates, if he was teaching thirty students in any one branch of Science only;* but if he held one certificate only, and was teaching 100, or any other number of students, in the branch for which it was given, he could still only obtain 201. on his certificate besides his prize-money, should his students have been successful in obtaining prizes.

Under the new regulations, however, the teacher received the sums above mentioned for every passed student, "honourable mention," or prizeman, without limit as to number. But then a provision was added, that 5l. would be the maximum amount paid upon any one student; and (to cut a long story short) in the 'Directories' of 1863 and 1864, new minutes were issued, which, without any justification or show of reason, reduced the stipends of the teachers apparently in

the inverse ratio to their proficiency!

Thus, "If a student be successful at the examination in more than one subject, the teacher can only claim half of the above payments in

^{*} The regulation being that he should be paid 4l. per head for every student under tuition, up to the maximum value of each certificate held by him.

respect of such further subject in which he is successful" ('Directory' of 1864, Rule xix.); and again, "Payments are only made on the foregoing scale when they amount to not more than 60%; when on this scale they would amount to more than 60l., the excess up to 40l. is diminished by one quarter; the excess above 40l. by one-half." (Ibid., Rule xx.) And not only were the emoluments of the teachers cut down, but their duties were increased to an unnecessary degree, the State requiring them in some instances to perform herculanean feats of intellect. In fact, the object of all these changes was sufficiently obvious; it was to increase the labour and diminish the emoluments of the teacher to such a degree as to compel him to dis-

pense with the State aid altogether.

We will give one or two illustrations of the operation of these minutes, and of the wisdom and justice by which they were dictated. Let us suppose that in 1860 a first-grade teacher was imparting instruction in one subject to five pupils, of whom three gained firstclass and two second-class prizes; he would receive from the State 201. (4l. per head) on his certificate, and 13l. prize-money; and suppose that, continuing to teach the same class in 1861, the three first-class prizemen again took first-class prizes and medals in addition, and that the two second-class men improved the grade of their prizes, he would receive no remuneration on the medallists, but still 20l. on his certificate and 15l. prize money=35l., an advance of 2l. for the increased proficiency of his pupils; being in all a sum of 68l. for delivering 80 lectures at least to his class in two years.

But now, let us suppose the same teacher to be at work in 1863 and 1864 under precisely the same conditions, and under the revised

code, and what would be the result?

In 1863 he would receive no "certificate" money, but 231. on "results," and in 1864, when his five pupils had increased in proficiency in the degree named above, he would receive nothing upon his three best pupils who had taken medals, and 2l. upon the two who had risen in the scale of prizemen! In short, he would have delivered at least 80 lectures in two years, and instead of the moderate sum of 68l. under the old regulations, he would receive the munificent sum of 25l. (23l. the first year; and 2l. the second) for imparting Science in-

struction to those "who are unable to help themselves!"

But it may be thought that we have selected or supposed the worst possible case to illustrate the operation of the new minutes. This is not the fact; there are worse cases actually in existence. When the Liverpool school was first started in 1861, it supported two lecturers, one gentleman being one of the most successful teachers that had been called into existence by the Department, and the other a medical man, of high scientific and literary attainments, and a graduate of Oxford University. The number of regular students in the school was about 130; and for imparting instruction to these, the Government grant amounted to about 140l. or 150l. In 1864 the school had materially extended its operations, and possessed two teachers in addition to those referred to; the number of students remained about the same (125), but these had attained a much greater degree of proficiency, some of them having taken high honours in five or six branches of Science.

What does the reader suppose was the amount paid "in aid" to its four lecturers? About 401. or 501. in all, with the prospect of that sum being still further reduced, provided the committee should comply with the difficult conditions of the State, and nothing at all if they failed to do so!*

What would our ministers of State and heads of Departments say, if we, the tax-payers of the country, treated them after such a fashion?

It is true that they can point to the figures in their Blue Books and show that they have raised up a vast and useful system of scientific education, without any material increase in the national expenditure; but even those figures will not bear a close investigation.

We find entered in the Report of the Department for 1859 the following items of expenditure:

In aid of teachers of all kinds (Art as well as	£
Science) about	15,400
For general management	3,600
Under the head of South Kensington Museum	2,350
In the Blue Book of the year 1864, with its addition of about 330 teachers and 3,500 students, we find the following payments in	
aid, to all teachers as before, about	16,500
(or an increase of about 1,000l. in six years.)	es fire with
"General management"	5,000
(or an increase of about 1,300l. in the same time	.)
"South Kensington Museum"	4,200
(or an increase of 1,900l.)	

Thus, the salaries of the South Kensington officials had been raised by a sum rather more than the total amount of increase "in aid" of the 300 additional teachers. And besides this, we have the modest little sum of 11,473l. 18s. 9d. (equal to about two-thirds of the total grant "in aid") put down to "Objects purchased for National Art Museum," which we presume to mean, Mr. Cole's hobby at South Kensington!

Again we would ask whether this is fair to the large body of Science teachers?

Why should the salaries of the secretary, and all other officials, increase at the rate of from 40l. down to 10l. per annum,† and at the same time the stipends of the teachers, who are doing the real work of the Department, be materially diminished year by year, and at last entirely confiscated?

We say nothing of the binding nature of the engagement under which teachers were first enlisted, but as taxpayers and men of busi-

^{*} This session—1864–5—the school has with difficulty been started, owing to the mode in which the State has treated the lecturers. The necessarily increased fees of students, have materially diminished their number.

[†] See 'Civil Service Estimates (Education, Science, and Art).' 1863.

siness, we cannot quietly acquiesce in this mode of distributing the public funds.

And if the teachers have thus fared at the hands of the State, have

the students had better justice dealt out to them?

In seeking the reply to this inquiry, we have to consider elements very different from those which affected the interests of the teachers; but even here, so far as the State management is concerned, it leaves

much to be desired.

Some credit is due, and has been conscientiously acknowledged by the State, to the Committees who have co-operated with it in the establishment and maintenance of the various schools and classes which have so suddenly sprung into existence, but their chief merit has consisted in the perseverance with which they have endeavoured to maintain the integrity of the institutions, and honourably to fulfil their duty towards both teachers and students in the face of the rapidly diminishing

State aid, and increasing State interference.

There is no doubt, however, that for the real, lasting benefits which have been conferred upon students, the latter are mainly indebted to their devoted teachers, who, notwithstanding the inconstancy of the State, have never for an instant relaxed their efforts to raise the intelligence of the "Industrial classes." No money payment could adequately compensate the teachers for their services; but we can assure them, after a careful study of the relations existing between them and their pupils, that they have earned the deepest gratitude, and are in possession of the best wishes of those for whom they have laboured so assiduously. To this fact many letters, as well as spoken words, have testified, and it is truly the green spot in this dreary history.

As to the State, it has granted, and still continues to distribute, amongst the students what are called "Queen's Prizes" and Medals. The former are books, and the latter very beautiful medals of gold,

silver, and bronze.

The number of books (Queen's Prizes) awarded to each successful student, was from the first judiciously limited, but the binding of those which represented one or more prizes of the first grade was rich

and elegant.

Fiscal economy soon, however, dictated unsatisfactory changes even in this paltry matter. The bindings became less attractive, the number of books awarded to each successful student was reduced, and an attempt was made to do away with the second and third grade prizes altogether. The last-named minute was rescinded, owing to the opposition which was raised against it, not, however, without a slight turn being given to the screw in another direction. Some idea may be obtained of the diminished number and value of the prizes from the fact that in 1861–2, the estimate for prizes, medals, &c., in Art and Science, was 2,750l.; and for 1862–3, 3,000l.;* whilst in the return made in 1864, with the vast addition of students that had taken place, the item for all kinds of prizes in Art and Science, is 2,503l.

^{*} See 'Education Estimates for 1863.'

But this is not the worst feature in the affair. There is a matter to which the attention of those who are the nominal heads of this Department cannot, we think, have been directed, or we feel confident it would never have been tolerated.

Whatever might be the number of books distributed, or their external appearance, at least it was to be expected that all the works on the list from which students are permitted to make their selection, would be of an unimpeachable standard; that all the prizes indeed would be worthy of the exalted Personage whose gift they are sup-

posed to be.

A cursory glance at the list will, however, satisfy any unprejudiced person that there have been in its compilation considerations other than that of providing successful students with standard works on Science; and we really think that the State did not exercise a sound discretion, nor add to the respect which, it is no doubt desirable, should be entertained for it by young students of Science, when it offered them as a reward for successful study the valuable contributions to our scientific literature of the still "unattached" Mr. Buckmaster. As we have already said, the energy of Mr. Buckmaster has doubtless been of great value to the Department, and the results of his persuasive eloquence are no doubt deserving of an appropriate reward; but the insertion of his little books in the State list is, we venture to think, a very inappropriate method of crowning his labours, and it has caused great chagrin in those quarters where, through misplaced confidence, they were selected as prizes; nor has the student any alternative but to select these works in case he takes a low prize and wishes for a book on the subject of which they treat.

Had the section in which they are comprised consisted entirely of such productions, we might have been led to suppose that the Department had taken a leaf out of the book of some of our less liberal Railway Companies, which compel their passengers to ride second-class by making the third as uncomfortable as possible; but when we find in the same group with 'Buckmaster's Elements of Chemistry,' Professor Ramsay's 'Lectures on Physical Geography,' and works of a similar kind, we cannot help feeling that the introduction of the former in the list is attributable to motives which ought not to influence those under whose direction this portion of the public service is conducted. We direct attention more especially to this case; as being one which we think must have escaped the notice of the head of the Department, but there are other "Queen's Prizes," which are open to objection, and no doubt an inspection of them in the proper quarter

would lead to beneficial changes in the list.

The mention of Professor Ramsay's name will probably have reminded some of our readers that there is a small body of gentlemen connected with this Department of the State, without a reference to whom, our notice would be very incomplete; we mean the "Professional Examiners for Science."

In the selection of these, the State has exercised great judgment; and this portion of the work of Science instruction is being carried out on the most approved principles. We have from time to time had

occasion in company with able teachers of Science, to peruse the examination papers of several of these gentlemen, and can fully indorse the opinion we have often heard expressed that the whole

heart of the examiners is in their work. Because these gentlemen are moderately remunerated, it does not follow that the students and votaries of Science are under no further obligation to them, and we do not feel it to be a presumption on our part, when, in the name of all interested in the diffusion of sound scientific information, of students, teachers, and committees, we say that they are entitled to our cordial thanks, and to our best wishes. We trust that they may long continue to direct the examinations in their respective departments of Science. Professor Huxley on Zoology; Dr. Lankester, Botany; Professor Ramsay, Geology; Professor W. W. Smyth, Mineralogy; Professor Hoffmann, Chemistry; Professor Tyndall and the Reverend B. M. Cowie, Physics; and Professor Bradley, Geometrical Drawing.

Quitting now the bright side of our subject, we must return for a moment to the question of the teachers' grievances. And it may possibly appear strange to some of those who have followed us in this cursory and imperfect review of the South Kensington Science movement, that if the reductions, which have been made from year to year in their emoluments, had been considered unfair by the masters, they would have broken out into open opposition.

"How is it," they may be inclined to inquire, "that these 'minutes,' have been issued year by year without any public protest against their injustice?" For whoever has conversed with teachers and committees, knows well that, privately, much dissatisfaction has been expressed, and that representations to that effect which have remained unheeded, have even been made through the proper channels to the Department.

The reply will be found in the following story, which, though very old, has lost none of its force when applied to the case under con-

There once reigned, somewhere in the East, a great tyrant, who, sideration. like the Caliph Haroun al Raschid, used to amuse himself by walking

abroad alone to hear what people said of his rule.

This bad ruler, having heard of a poor defenceless old woman who possessed four cows, sent down one of his minions to take away one of them, and transfer it to the "Crown." A few days afterwards, when the king was passing the poor woman's cottage in disguise, he heard her, in her devotions, secretly invoking curses on his royal head, and

praying for his speedy removal to a better land.

Thereupon he sent an officer to take away another of her cows; and on again passing the cottage shortly afterwards, he heard the old woman reiterate her prayers to the Almighty to punish and remove the tyrant who thus plundered his subjects. The result was, as may be anticipated, the disappearance of a third cow; but when some time afterwards his Majesty was passing by the cottage, he heard, to his astonishment, a voice praying for his long life and unimpaired health. On entering the cottage he was surprised to find a poor decrepit old creature lying helpless upon her couch, and when he asked her why she offered up such prayers for a tyrant who had deprived her one by one of her most valuable possessions, she told him that after each act of spoliation, she had secretly invoked curses on his head, but that, finding the sole result to be the abstraction of some of her remaining property, she had now changed the tenour of her prayer . . . lest he should rob her of her last cow! It is so long since we read this story that we forget whether the tyrant, whose better instincts prevailed for a season, returned the poor woman her cows, of which she had been plundered, or whether he was content to leave her in the possession of her sole remaining property; but, proceeding to the application of our story, we feel sure that unless the Science teachers of the country bestir themselves manfully they will not be left long in the undisputed possession of their last cow.

Like the tyrant in the tale, that section of the State which ought to exercise a paternal influence, and watch over the interests of Science and Art, is far from evoking the *blessings* of the community, and no doubt its faithlessness has often caused, and must still continue to give rise to much secret distress, which the helplessness of

the sufferers has compelled them to bear without a murmur.

The question, "Who is responsible for these grievous wrongs?" may be easily answered by any one who has carefully watched the progress of events, and the reply is aptly conveyed in the words of a recent French writer on Social Reform,* who says—"A matter which, in the infancy of the system, would have been managed by the Prime Minister himself—which, in the growth of its intricacy, would have been entrusted to a 'Director-General,' to a 'Director,' to a 'Chefde-division,' to a 'Chef-de-bureau'—is now only understood in all its details by a 'sous-chef,' whom such petitioners as happen to be well directed manage to find in huge barracks of bureaucracy in Continental capitals. It is this 'sous-chef' who, in the now existing state of things, draws up whole batches of 'minutes,' which even the most painstaking ministers must often sign unread."

Let the reader shift the scene from Paris, or Berlin, to Whitehall and South Kensington, and he will understand the secret of all that mismanagement which has called forth such loud and oft-repeated

complaints.

The most anomalous feature in the whole affair, however, is that a glance at the past history of this Science movement serves to show that it was begun in a *liberal* spirit by a Conservative Ministry, but was continued in a spirit neither conservative nor by any means

liberal, by a "Liberal" Ministry.

It may, perhaps, be suspected that in pointing out this circumstance, we have some political motive, beside the real question at issue; but this is, most assuredly, not the case. The circumstance has been brought under our notice by persons to whom we have complained of the course adopted by the State, and the reply (suggested, no doubt, by party feelings) has often been—"Yes, it is

^{* &#}x27;La Réforme Sociale en France,' &c. Par M. Le Fay.

very wrong, and you will have no redress until we have a new

Ministry."

We do not mean to seek notoriety, nor to curry favour with any "party," by an attack upon the existing Government; neither is it our intention to denounce that Department of it which has so completely belied the great principles of the Liberal party. The former would be to us a distasteful proceeding, and the latter, which has often been effected with scathing sarcasm, would simply be injurious, and of no avail towards securing the end we desire—namely, justice.

Instead of reaping a reward for the freedom with which we have commented upon the shortcomings of one section of the State, we must even be prepared to incur a considerable share of ill-will, and to lose some friendships. But, however we may have to deplore the one, or to miss the other, we shall be well satisfied to abide by the consequences, if the mischief which has been done be but speedily repaired. The plea of "economy," in justification of the course that has been adopted, is a wretched one; and we express and endorse the opinion of one of the leading financial reformers of the day, in stating that the very last item of the national expenditure which the people of this country would desire to see curtailed, is the unimportant one which provides for the intellectual improvement of the masses.*

As it is, however, not safe to be too sanguine, and to expect that the State will voluntarily retrace its steps, we must, as an alternative, address a few words of counsel to the Science teachers of the country. Their strength, and perhaps their only hope of redress, lies in concert and agitation, those two talismans which have so often wrought wonders upon obdurate rulers, and it has frequently been a matter of

ert and agitation, those two talismans which have so often wrought wonders upon obdurate rulers, and it has frequently been a matter of surprise to us that they have sat still, and looked on patiently, whilst acts of injustice have been committed, without making any attempt to form themselves into a protective Association. The rapid modes of intercommunication which now exist would render such a scheme easy of accomplishment, and the delegates from various districts in the United Kingdom could easily hold an annual Conference, which might not only consider the best means of guarding the interests of the teachers, but of promoting the work of Science instruction.

If the more prominent and influential teachers choose to bestir themselves, and to prevent the body from remaining any longer a bundle of loose fagots without bond or tie, they will no doubt find many who are willing and ready to give them material and moral support (should this be requisite), and gentlemen of influence in Parliament willing to represent their interests.

But, to be effective, such a movement should not be long delayed. A dissolution of Parliament cannot be far distant, and besides the value, at such a juncture, of an associated body prepared to act as a whole, it would no doubt be found that many of its individual mem-

^{*} In the year 1861-2, when this scheme of Science Instruction may be said to have been in active operation, the total amount of money expended on 'Education, Science, and Art,' was 1,359,996l., of which 'Science and Art' received 111,484l., and of this latter sum, the amount devoted to Science and Art tuition (salaries and payments in aid), was 17,500l.! and for rewards to students 2,750l.

bers would be well able to wield the pen, and might exercise considerable influence upon Constituencies. For the present, then, we reserve further comments, but when the proper time arrives, our aid will not be found wanting, and if it be required, the little influence we possess will be at the service of those whose interests these remarks are intended to protect, and with whose labours in the cause of Science we have the most sincere sympathy.

